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What motivates students to use Podcasting?

ABSTRACT

Podcasting which is one of the technologies that was found for personal entertainment or for information usage, has become one of the fastest growing technologies over the past several years (Shim, Shropshire, Park, Harris, and Campbell, 2007). Currently it is used for many different subjects, from music to technology, news to foreign languages, politics to education (Lazzari, 2009). This study attempts to identify and empirically assess the motivational factors, intrinsic and extrinsic, that drive users to adopt podcast. The Technology Acceptance Model (TAM) is employed as the base model for this study and it is modified by adding motivational factors that affect the adoption of podcast. The model is tested via a survey that was developed for the aim of this study. The structural equation modeling was used to test the relationships and the results revealed that intrinsic motivational factors have a big effect on podcast adoption.

Keywords

Podcasting, mobility, intrinsic motivation, extrinsic motivation, enjoyment.

INTRODUCTION

As information and communication technology (ICT) has advanced, individuals have become dependent on it, and it becomes a main factor of their daily activities. ICT helps individuals as well as organizations to store, process, transmit and report essential information easily and in a short time. With the advancement of the technology, it has been realized that so many things have been changed in the daily life of the people. From these advancements, we can list: the pervasive activity of the Internet; the fast growth of broadband; the widespread availability of the multimedia personal computer; the mixing between streaming and downloading of media content; as well as the rapid adoption of portable MP3 playback devices (Campbell, 2005). All of these have led to a big change in the way people interact with each other as well as the way they do things since the time has become the most essential resource for them. Beside these benefits of the new technologies, people are becoming more interested in finding new ways that match the advancement, mostly they are interested in those that they can access anytime and from anywhere they think it is convenient. Thus, a new technology has been innovated which is the podcasting.

Basically, a podcast is an audio/video file distributed to an appropriate media player over the Internet (Frydenberg, 2008). A media player can be a Personal Digital Assistant (PDA), iPod, personal computer or modern cell phones that are capable to read audio/video files (Frydenberg, 2008; Lee, McLoughlin, and Chan, 2008; Evans, 2008). In addition to its convenient usage, podcasting provides another advantage which is the ability of doing other things such as cooking, taking notes, driving, running, strolling, travel to work while listening to them (Donnelly and Berge, 2006; Fernandez, Simo, and Sallan, 2009) since it can be used from anywhere and anytime after it is downloaded (Cebeci and Tekdal, 2006; Shim, Shropshire, Park, Harris, and Campbell, 2006). That is because it is subscribable. This means that the listener/viewer does not need to actively seek new episodes but instead they are downloaded automatically to his/her personal computer as they are made available by the publisher. Second, the podcasts are not streamed which means that the files are actually saved into the listener's/viewer's personal computer for subsequent replay and / or transfer to a portable device, simply there is no need for internet while listening/watching the podcasts (Lim, 2006; Lazzari, 2009). Podcasts are currently available on many different subjects, from music to technology, news to foreign languages, politics to education (Lazzari, 2009).

At the beginning, podcast was found for personal entertainment or for information usage but currently it is used for many different subjects, from music to technology, news to foreign languages, politics to education (Lazzari, 2009, Walls et al., 2010). This multi-usage benefits has led to an increase in the number of portable music players and podcasting during the last few years (Campbell, 2005). Podcasting has become one of the fastest growing technologies over the past several years (Shim et al., 2007). According to a 2006 survey, 20% of American adults and 26% of internet users report ownership of an iPod or MP3 player (Madden, 2006). Of these people, six million have downloaded podcasts and it is expected that podcasting is going to reach 12.3 million households by 2010 (Rainie and Madden, 2005; Forrester Research, 2005; Crofts, Dille, Fox, Retsema, and Williams, 2005). This large increase in demand for podcasting in different field as mentioned and in the educational sector precisely, attracted us to study the motivating factors that can lead people to adopt this technology. Thus in this study we are going to answer the following question: what are the intrinsic and extrinsic motivation factors that lead users to adopt podcast. Many researchers as well as practitioners will find this study useful. To start, as it was noticed, there is no research that studies the motivational factors that influence the adoption of podcasts up until today. Thus, this study serves in filling a gap in the literature. In addition, identifying the motivational factors that influence users helps

practitioners, commercial as well as educational institutions, to focus more on these factors in order to success with their projects.

The purpose of this study is to empirically examine the factors influencing users to adopt podcast. For this purpose, we employed the Technology Acceptance Model (TAM) as the base model for this study since several studies have shown that TAM can explain the influence of different factors on the users' intention to use information technology in general (Davis, 1989; Venkatesh and Davis, 2000). The TAM has been modified in this study by adding other intrinsic affective motivation factors that affect the adoption of podcast, since most of the research in TAM was done on technologies that were introduced into organizations which do not describe the complete voluntary usage of technologies as in the case of podcast. These motivation factors are namely: mobility, enjoyment, and image as affective motivations, in addition to usefulness as a cognitive motivation.

THEORETICAL FRAMEWORK

Technology Acceptance Model

The Technology Acceptance Model (TAM) provides a well-established model for evaluating and predicting user acceptance of information technology (Davis, 1989; Venkatesh and Davis, 2000). In the same vein, the TAM has been used to evaluate the use of internet-based technology in higher education programs (Saade, Fassil, and Tan, 2007). Basically, the TAM framework is an assumption that user acceptance is likely greater if the user perceives the technology as useful and easy to use (Davis, 1989). In general several studies have shown that TAM can explain the influence of different factors on the users' intention to use information technology (Davis, 1989; Venkatesh and Davis, 2000). For this purpose, we employed it as the base model for this study.

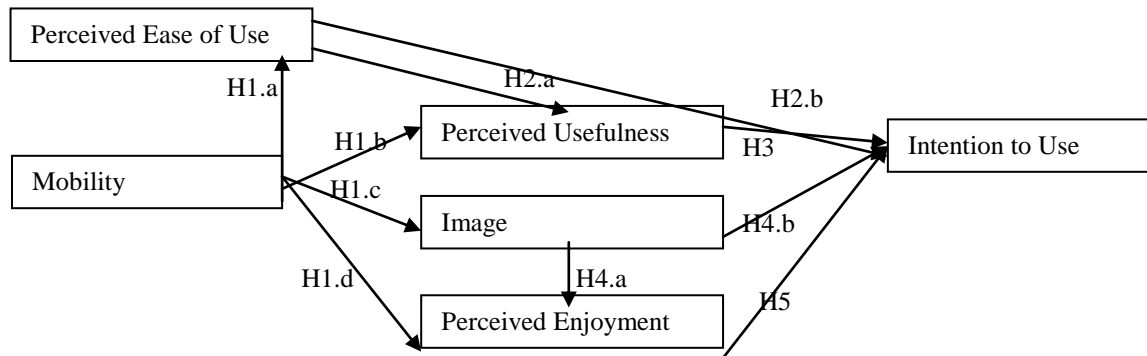
Motivation

In order to provide a broader view and a better explanation of IT adoption other factors are in need to be included in TAM. Specifically, factors related to humans such as motivational perspectives should be incorporated. Motivational perspective can be defined as the degree to which an individual believes that using a particular system would enhance his or her job (Liaw, and Huang, 2003). For this reason, researchers (Davis, Bagozzi, and Warshaw, 1992) adapted motivational perspectives to TAM and they argue that motivational factors are key drivers of behavioral intention to use computers. In general, motivational perspectives are composed from two broad categories: extrinsic and intrinsic. Extrinsic and intrinsic motivators are two different types of drivers capable of evoking specific outcome behavior. Extrinsic motivations refer to behaviors that are engaged in response to something apart from its own sake. It is perceived to help achieve valued outcomes that are distinct from the activity itself, such as improving job performance, pay, etc. (Moon and Kim, 2001). On the other hand, intrinsic motivation deals more with the pleasure and satisfaction resulting from a specific activity. Simply, it refers to the fact of doing an activity because it is interesting, engaging, and lead to satisfaction in a way and not for any other reason (Lee et al., 2005). In other words, intrinsic motivation is based on the performing of an activity purely for the enjoyment of the activity itself and extrinsic motivation refers to the performance of an activity with the belief that it is instrumental in achieving valued outcomes that are separate from the activity (Liaw, and Huang, 2003).

Researchers have found that both intrinsic such as enjoyment (Davis et al., 1992; Venkatesh, 1999) and extrinsic motivations such as perceived usefulness (Davis et al., 1992) have positive effect on the intention to use technology. On the other hand, mobility can be both intrinsic and extrinsic motivation. In this study and in the case of podcasting, mobility and image are two factors that are believed to be intrinsic motivators. As mentioned previously intrinsic motivators lead to users' satisfaction and that is the aim of these two factors.

RESEARCH MODEL, AND HYPOTHESES

Most of the work in TAM was done on technologies that were introduced into organizations which do not describe the complete voluntary usage of technologies as in the case of podcast. Moreover, previous research in this area has been conducted from an extrinsic motivation perspective. Thus, in order to provide a broader view and a better explanation of podcast adoption, the TAM model has been modified in this study by adding other intrinsic motivation factors that affect the adoption of podcast. These factors are: mobility, image, and perceived enjoyment. Graph 1 depicts the research model used in this study. As one can see, the presented model is composed from three parts: technology related parts, pure motivational factors, and the last intention to adopt. In this model, it is believed that technology (mobility and ease of use) affect the extrinsic and intrinsic motivational factors (perceived usefulness, image, perceived enjoyment) that lead to podcast adoption. Following are the factors of the model as well as the hypotheses.



Graph 1: Motivators of podcast adoption.

Perceived Mobility

Perceived mobility in this study is the extent to which users can access the podcast anytime and anywhere with no restrictions. As mentioned previously the aim behind the invention of the podcast was to help people get the needed data and information easily at anytime and anyplace convenient to them (Donnelly and Berge, 2006; Chan et al., 2006; Shim et al. 2006; Harris and Park, 2008; Bolliger et al., 2010). Once downloaded, podcasts can be transferred and used with a variety of portable devices such as the iPod, handheld computers, as well as many modern mobile phones and personal digital assistants (Kamel Boulos, Maramba, and Wheeler, 2006; Cebeci and Tekdal, 2006; Lee et al., 2008). The mobility that podcast provides to the users motivate them intrinsically. Students are no longer obliged to stay in a specific place to study and prepare for their classes (Walls et al, 2010). Thus, this makes it easy, useful, attractive, and enjoyable.

Consequently, we hypothesize:

H1.a: Perceived mobility has a positive influence on Perceived Ease of Use.

H1.b: Perceived mobility has a positive influence on Perceived Usefulness.

H1.c: Perceived mobility has a positive influence on Image.

H1.d: Perceived mobility has a positive influence on Perceived Enjoyment.

Perceived Ease of Use (PEoU)

PEoU is the degree to which a person beliefs that using a particular system would be free of effort (Davis, 1989). In fact easy and not complicated technologies can be accepted faster by the users. Researcher (Evans, 2008) suggests that producing podcasts is relatively easy for educators. Others such as Fose and Mehl (2007), Chan, Lee, and McLoughlin, (2006), Lim (2006) state that users can easily download and install the iTunes software program on their computers in order to access and download podcasts through RSS channels to computers or portable devices such as MP3 players or iPods. Thus, since podcast does not need much experience and does not have complicated system, PEoU became an important factor toward the intention of users to adopt podcast. Moreover, researchers such as Heijden (2004) argued that PEoU has an indirect effect on intention to use through Perceived Usefulness (PU). This is because the easier a technology is to use, the more useful it can be (Venkatesh, 1999).

Therefore, we propose the following hypotheses:

H2.a: Perceived ease of using podcast has a significant positive effect on perceived usefulness of podcast.

H2.b: Perceived ease of using podcast has a significant positive effect on intention to use podcast.

Perceived Usefulness (PU)

PU is the degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1989). PU which is one of the important factors of the TAM that has been proved in many IS research that it is important (Yu, Ha, Choi, and Rho, 2005; Taylor and Todd, 1995; Pikkarainen, Pikkarainen, Karajaluoto, and Pahnla, 2004) toward the intention of the users' adoption of new technology. It is an extrinsic motivation (Davis et al., 1992). Previous research found that the majority of students in traditional courses rated podcasts as very useful (Copley, 2007), other claims that students are more receptive to learning material provided in the form of a podcast than a traditional lecture or textbook (Evans, 2008). Moreover, since podcasts have been used by students to solve their problems such as improvement of their academic achievement, reducing their anxieties, increasing their satisfaction by making up in case they miss the class (Cruz and Carvalho, 2006; Tavales and Skevoulis, 2006; Chan and Lee 2005) we hypothesize:

H3: Perceived usefulness of podcast has a significant positive effect on intention to use podcast.

Image

Image in this study is the extent to which users feel impressed when they use podcast. This feeling is by itself intrinsic, since it is an inside motivation. If users feel by using podcast they get impressed, this will motivate them to enjoy listening and watching podcast on their devices. At the same time, this feeling will lead them to adopt and use podcasts more and more. Based on this discussion, we hypothesize:

H4.a: Image has a positive influence on Perceived Enjoyment.

H4.b: Image has a significant positive effect on intention to use podcast.

Perceived Enjoyment (PE)

PE is the extent to which the usage of the technology is perceived to be enjoyable for the users apart from any consequences. It was added by Heijden (2003) to the TAM and demonstrated that it has a big influence on the intention of users to adopt using website. Moreover previous studies (Davis et al. 1992; Bruner and Kumar, 2005; Pikkarainen et al., 2004) find that perceived enjoyment is an intrinsic motivation that plays an important factor driving technology adoption. Usually, the greater the level of technology's enjoyment is, the lower users consider its hardness-easiness. In fact users and especially adults tend to try everything despite of its complexity. Podcasts facilitate "just-in-time" learning where learners can often take advantage of unexpected free time since they frequently have their devices with them (Evans, 2008). This again explains the importance of the mobility that helps them get intrinsically motivated and get dual benefits, first enjoying the usage of the device as well get learning and accessing the class materials.

Accordingly, we hypothesize:

H5: Perceived enjoyment has a positive effect on intentions to adopt podcast.

METHODOLOGY

Sample and measurement

A paper based survey was used in this study in order to collect data. A total of 108 surveys were used in this study. The surveys were conducted in one of the universities in the USA and the people who participated were undergraduate and graduate students from different colleges (education, health science and human services, and social and behavioral sciences). Among the respondents 32.4 % were male and 67.6 % female; 82.4 % have personal device, and 91.7% have access to the Internet. Moreover, the participants were relatively young since they are students at the university and 89.8% were less than 30 years old as indicated in Table 1. Podcasting was an option for some classes and not mandatory, it was used a supplementary tool in order to help student to catch up with missing information. This explains the low rate of "listen" to podcast in this study; approximately 67 % of the participants used it. More descriptive information about the frequencies and the percentages of the participants is presented in Table1.

	Frequency	Percent (%)
Gender		
Male	35	32.4
Female	73	67.6
Age		
< 20	5	4.6
20-25	66	61.1
26-30	26	24.1
31-35	6	5.6
>35	5	4.6
Personal Device		
Yes	89	82.4
No	19	17.6
Internet		
Yes	99	91.7
No	9	8.3
Listen		
None	36	33.3
1-3 times	53	49.1
4-6 times	9	8.3
7-10 times	4	3.7
>10 times	6	5.6
Time		
<15 min	45	41.7
15-30 min	23	21.3
30-45 min	16	14.8
45-60 min	10	9.3
>60 min	10	9.3

Table 1: Frequencies and percentages on demographic profile.

Instrument Construction, Validity, and Reliability

The scale items of the survey were developed from previously validated measures in many researchers. For instance, the intention, ease of use, and usefulness scales were adapted from Davis (1989), perceived enjoyment from Davis et al. (1992), while mobility scale was adopted from Evans (2008). A total of six constructs were employed, and a total of 18 multiple items with five-point Likert scale ranging from “Strongly disagree” to “Strongly agree” was used to measure each item. Prior to the study; a pilot test of measures was conducted by PhD students. The wording of items was reviewed and modified based on the pilot test outcomes. Overall, the pilot test has shown a high reliability.

The reliability of measurements were tested using SPSS software. The results presented in Table. 2 indicates that all the constructs in the proposed model had reliability values with Cronbach's α greater than the 0.7 threshold level, which indicates that an internal consistency among the items making it up.

Constructs (Items)	Mean	S.D.	Cronbach α
Intention (2)	3.57	.881	.905
Ease of use (3)	3.52	.895	.934
Usefulness (4)	3.72	.832	.914
Enjoyment (3)	3.32	.757	.900
Mobility(3)	3.13	.891	.777
Image (3)	2.77	.807	.784

Table 2: Mean, Standard Deviation, and Chronbach alpha for each measure.

The TAM model has been checked and validated by many studies before. In order to check whether the new constructs (mobility, enjoyment, and image) have a high validity when added together, a confirmatory factor analysis was applied. Five different fit measures were used to check for the overall goodness of fit of the model. These measures include the ratio of χ^2 to degrees of freedom, Normed Fit Index (NFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). The results are presented in Table3. By checking the result of the fit indices, one can see that it is a good model since all three indices NFI, TLI, and CFI are greater 0.9, in addition the ratio of χ^2 to degrees of freedom is less than 3. The RMSEA value was marginally greater than cutoff which is 0.08, and that is due to the small sample size used in this study.

Fit indices	CFA
χ^2 / d.f.	2.365
NFI	.904
TLI	.911
CFI	.941
RMSEA	.113

Table 3: Fit-indices of the intrinsic motivation factors.

FINDINGS AND DISCUSSIONS

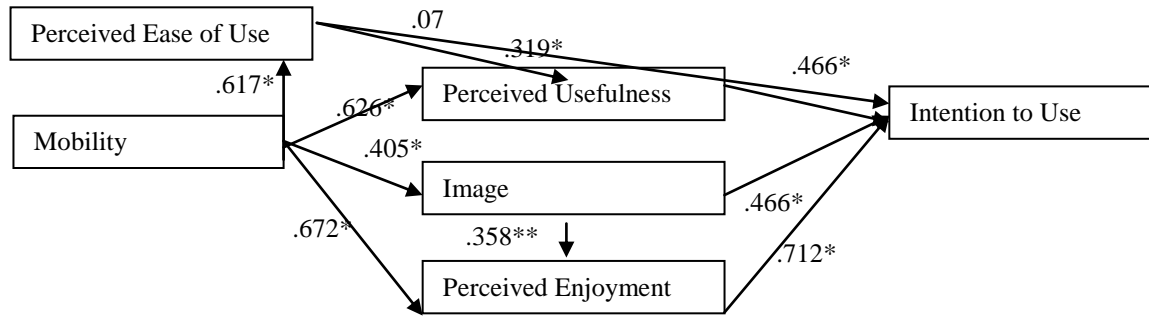
After checking the instrument validation, measurement reliabilities, we proceeded to run the model. First of all, we checked for the overall goodness of fit of the model. Five different fit measures were used including the ratio of χ^2 to degrees of freedom, normed fit index (NFI), Tucker-Lewis index (TLI), comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The result is presented in Table 4. As one can see, the ratio of χ^2 to degrees of freedom is good since it is less than 3, whereas the other fit indices are marginally lower for NFI, TLI, and CFI and marginally greater for RMSEA. The reason behind these results is the usage of the small sample size in this study which is a limitation by itself.

Fit indices	Structural model
$\chi^2 / \text{d.f.}$	2.420
NFI	.828
TLI	.866
CFI	.890
RMSEA	.115

Table 4: Model fit-Indices.

After checking for the model fit, we proceeded to check the path estimates and the hypotheses we proposed for this study. Graph 3 contains the unstandardized structural path estimates as well as their statistical significance. By comparing the path estimates it seems that mobility has an effect on all four constructs, perceived ease of use, perceived usefulness, image, and enjoyment. All the coefficients of these paths are statistically significant at a 0.01 level and as proposed in this study. This means that mobility is an antecedent for the other factors and users declare that it is a very important factor. In the same vein, comparing these four paths, it is obvious how mobility does affect the enjoyment as if the higher the level of mobility the users get, the higher the level of enjoyment will be.

The finding on the relationship between perceived ease of use and intention to use was not significant while the relationship between perceived ease of use and perceived usefulness was statistically significant at a .01 level. The former result is not consistent with TAM model and our hypotheses while the latter is. This result assures the objectives of this study. Simply, it means that users adopt podcasting not because of its easiness, but because of other factors that motivate them to use it. As mentioned previously, perceived usefulness is an extrinsic motivation that was confirmed in the result by having a statistically significant coefficient, whereas ease of use was not considered as an intrinsic or extrinsic motivation. Thus, having a non-statistically significant result for perceived ease of use does assure this study's aim.



Confirming to our hypotheses, image does have significant impact on perceived enjoyment as well as intention to use. Amazingly, both perceived usefulness and image have the same power on intention to use; whereas the relationship between image and perceived enjoyment is smaller compared to other coefficients. Again the significant relationship between image and perceived enjoyment assure the importance of the motivation of podcast adoption. The higher users get impressed by using podcast, the higher the level of enjoyment will be. This leads at the end to adopt it.

Moreover, and most importantly perceived enjoyment has the highest coefficient with intention to use. This indicates that perceived usefulness is more important than the other factors in the case of podcast. Moreover, this result is consistent with previous studies in Information Systems. Not only this, but it reassures previous studies (Davis et al. 1992) who found that perceived enjoyment is an intrinsic motivator that is an important factor driving technology adoption. Besides this good news, it should be noted that the effect of perceived enjoyment on intention to adopt podcast is stronger than effect of perceived usefulness. Again this result ascertains that intrinsic motivators are stronger and more important than extrinsic motivators.

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